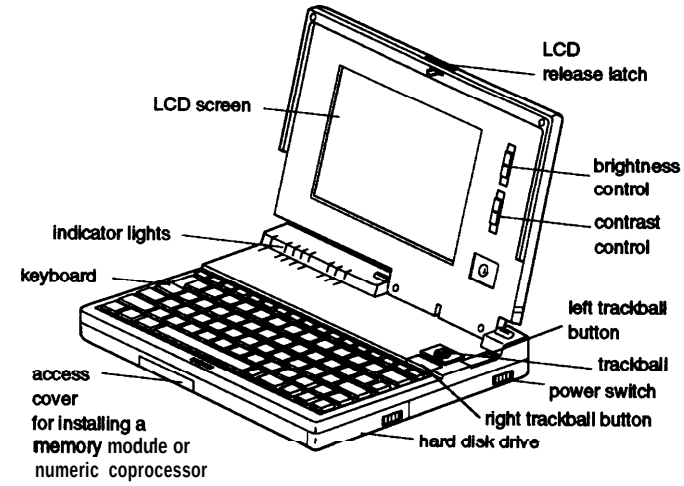
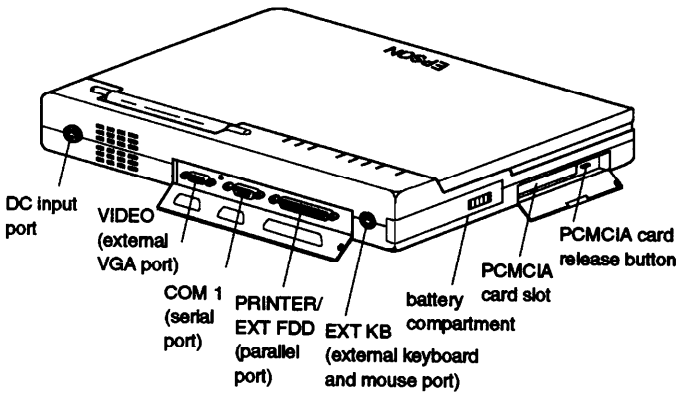



## Computer Specifications

### Main Unit

| | |
|---|---|
| CPU | 486SLC microprocessor; 33 MHz (and simulated 8 MHz) clock speed; 1 MHz in Suspend mode |
| Cache | 1KB internal two-way set associative cache |
| System memory | 4MB standard, 2MB soldered on main system board and one 2MB memory module; expandable to 8MB by replacing the 2MB memory module with a 6MB memory module; the first 640KB is conventional memory and 128KB is used for shadow RAM; the rest can be used as extended or expanded memory |
| ROM BIOS | 128KB on a single one-time programmable ROM (includes system BIOS, VGA BIOS, and the SETUP program) |
| Video RAM | 256KB, 80ns video memory on main system board; 256KB x 4 frame buffer |
| Shadow RAM | System shadowed at F0000 to FFFF, 64KB; VGA BIOS shadowed at E0000 to E8000, 32KB |
| Clock/ calendar | Real-time clock, calendar, and CMOS RAM for configuration backed up by built-in Dallas® DS 1287 or compatible clock chip |
| Numeric coprocessor | Socket for optional Cyrix® Cx 83S87 coprocessor |

### Controllers

| | |
|---|---|
| Diskette drive | Built-in controller for one external 3.5-inch 1.44MB diskette drive; supports 1.44MB and 720KB diskette formats |
| Hard disk | Built-in controller for removable internal hard disk drive |
| Video | Cirrus® GD6410B 16-bit VGA controller fully backward compatible with CGA and EGA; supports a standard monochrome LCD with a maximum resolution of 640x480x64 shades of gray and an external monitor with resolutions up to 800 x 600 x 16 colors; simultaneous LCD and CRT operation |
| PCMCIA | Databook® DB86082 PCMCIA version 2.0 controller; Type II connector; supports Type I and Type II memory and I/O cards |
| Speaker | Built-in ISA compatible speaker controller; internal |

### Interfaces

| | |
|---|---|
| External VGA | 15-pin, D-sub, female connector for external analog VGA or SVGA monitor |
| Parallel | Centronics® compatible, 25-pin, D-sub, female connector; standard 8-bit parallel |
| Serial | RS-232C, programmable, asynchronous, 9-pin, D-sub, male connector |
| Pointing device or external keyboard | 6-pin, mini-DIN connector for a PS/2® compatible pointing device or keyboard; keyboard supported directly, pointing device requires adapter |
| AC adapter | DC input port for external AC adapter; 4-pin, mini-DIN connector |

### Input Devices

| | |
|---|---|
| Keyboard | 79/80 (US) keys; embedded numeric keypad and **F11 and F12** keys; inverted T cursor control key layout |
| Trackball | Built-in, two-button trackball |

### *Mass Storage*

| | |
|---|---|
| Hard disk drive | One removable 2½-inch internal hard disk drive |
| Diskette drive | External, 3.5-inch diskette drive; 1.44MB and 720KB diskette formats supported; diskette drive connects to parallel port |

### *VGA LCD Monochrome*

640 x 480 dots x 64 shades of gray, 7.5 inch, 0.23 mm dot pitch, high-contrast, two-film; paper-white, backlit by one cooled cathode fluorescent tube (CCFT); continuous brightness and contrast controls; power-saving feature; brightness and contrast enhancement; contrast ratio 18:1

### *Power Supply*

| | |
|---|---|
| AC adapter | +12 VDC (to computer), +18 VDC (to battery charger), 3.0 A continuous AC adapter with international voltage input, 47/63 Hz |
| Battery | Removable and rechargeable, internal AE-size NiCad battery pack; 9-cell, 9.6 volt, 1.7AH, 16.3 W; typical 2½ hour battery life with SETUP Power Management enabled |

> Caution
> Use only the ActionNote 4000 AC adapter and battery with the computer.

### *Physical Dimensions*

| | |
|---|---|
| Height | 38 mm (1.5 in.) |
| Width | 252 mm (10.0 in.) |
| Depth | 190 mm (7.6 in.) |
| Weight (with battery and hard disk drive installed) | 1.75 kg (3.85 lb) |

### *Environmental Requirements*

| | |
|---|---|
| Temperature | Operating: 5° to 40° C (41° to 104°F)<br>Non-operating: -20° to 60° C (-4° to 140° F) |
| Humidity | Operating: 30% to 90% (non-condensing)<br>Non-operating: 5% to 95% (non-condensing) |
| Acoustical noise | 35dB @ 1 meter |
| Altitude | Operating: -61 to 3048 m (-200 to 10,000 feet)<br>Non-operating: -61 to 9,090 m (-200 to 30,000 feet) |

> Caution
> When traveling by airplane, bring the computer into the passenger compartment as carry-on luggage to prevent it from being stored in an unpressurized storage area.

### *Indicator Lights*

The indicator lights provide information about the computer's operation.

- Power-Indicates the computer is turned on.
- Low battery-Flashes to indicate the battery capacity is less than 20%.
- Suspend mode-Indicates the computer is in Suspend mode.
- Hard disk drive-Indicates the computer is accessing the hard disk drive.
- PCMCIA card slot--Indicates a PCMCIA card is in the PCMCIA card slot and the computer is accessing the card.
- Num Lock-Indicates that Num Lock is set. This activates the embedded numeric keypad on the keyboard.
- Caps Lock-Indicates that Caps Lock is set on the keyboard.
- Scroll Lock-Indicates that Scroll Lock is set on the keyboard.

### *Battery Alarm*

When there are only 1 to 3 minutes of battery life remaining, the computer beeps.

### *Options*

80MB hard disk drive

120MB hard disk drive

6MB expansion memory module

NiCad battery pack

External keyboard

External keypad

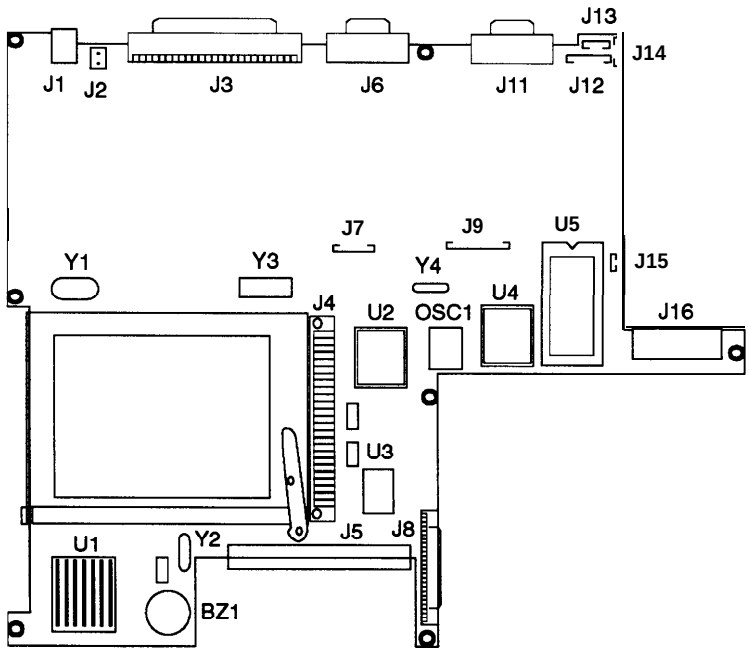
Adapter for automobile cigarette lighter

2400/9600 baud fax/modem PCMCIA card

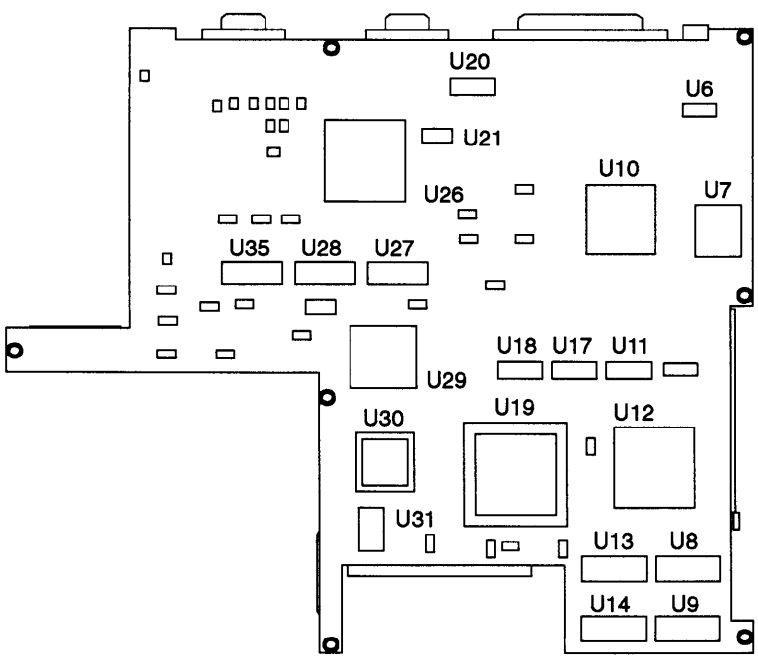
14,400/14,400 baud fax/modem PCMCIA card

## Main System Board Diagrams

**System Board, Top Components and Connectors**




**System Board, Bottom Components**



*System Board Components*

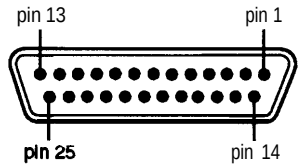
| Component | Description |
|---|---|
| CPU (U1) | 486SLC/33 microprocessor: 1KB internal, two-way set associative cache |
| BTC-5001 (U2) | BTC keyboard encoder&coder (70C40/77C82) |
| 80C42/8742 (U4) | integrated, 8042 compatible, keyboard controller |
| DS 1287 or compatible RTC (U5) | Dallas DS 1287 or compatible RTC; includes Lithium backup battery and RAM |
| TH6460 (U7) | Peripheral controller; provides one printer parallel port, two 16450 UARTS, IDE HDD interface, FDC, bus interface buffers |
| DRAM (U13, U14, U8, U9) | 4MB standard memory, 2MB soldered on main system board and one 2MB memory module; expandable to 8MB by replacing the 2MB memory module with a 8MB memory module (J5) |
| DB86082 (U10) | DataBook PCMCIA controller and driver interface module |
| ACC 2036 (U12) | System controller; provides AT bus control logic, data bus conversion logic, CPU reset logic, clock generation for CPU, keyboard and timer, DMA/refresh logic, and peripheral interface logic |
| Coprocessor (U19) | Socket provided for optional Intel 387SX/SL multispeed or Cyrix Cx387SLC-33 NPX |
| GD6410B (U26) | Video controller; supports LCD (640 x 480 x 64 gray shades) and CRT (800 x 600 x 16 colors) displays and simultaneous LCD and CRT operation |
| Video DRAM 256KB x 4 (U27, U28, U35) | On main system board; provides simultaneous LCD and CRT operation |
| ACC 2020 (U29) | Power management controller |
| AM27C010 (U30) | 1024 Kb (128 Kb x 8) (OT) EPROM; VGA BIOS ROM and Initialization BIOS ROM used during power up; Databook Socket Services; supports shadow RAM |
| Buzzer (BZ1) | Internal |

*System Board Connectors*

| Connector | Description |
|---|---|
| Keyboard or mouse (J1) | 6-pin, mini-DIN, female (back panel) |
| Cover switch (J2) | P-pin header, mate |
| Parallel port, printer/external FDD (J3) | 25-pin, D-shell, female (back panel) |
| PCMCIA (J4) | 68-pin header, male |
| Memory module (J5) | 44-pin header, female |
| Serial port, COM1 (J6) | 9-pin, D-shell, male (back panel) |
| Keyboard ribbon cables (J7, J9) | Ribbon terminators, 8-pin and 16-pin, respectively |
| IDE HDD (J8) | 50-pin edge connector; female, supports HDD |
| External CRT VGA (J11) | 15-pin female, back panel |
| CCFT inverter, LCD backlight, brightness/contrast (J12) | 12-pin header, male |
| LCD panel (J13) | B-pin header, male |
| LED (J14) | 10-pin header, male |
| Trackball (J15) | 4-pin header, male |
| Power supply, DC-DC converter (J16) | 22-pin connector, female; supplies power from the power supply to the main system board |

## External Connector Pin Assignments

### Parallel Port Connector (J3)




*Parallel Port Connector Pin Assignments*

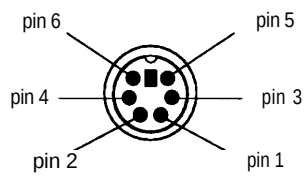
| Pin | Signal (Parallel) | Signal (FDD) | Pin | Signal (Parallel) | Signal (FDD) |
|---|---|---|---|---|---|
| 1 | /STROB (Strobe) | Not connected | 14 | /AUTOFD | Reduce write current |
| 2 | Data 0 | Index | 15 | /ERROR | Head select |
| 3 | Data 1 | Read data | 16 | /INIT | Direction |
| 4 | Data 2 | Write protect | 17 | /SLCTIN | Step |
| 5 | Data 3 | Track 0 | 18 | Ground | Ground |
| 6 | Data 4 | Disk change | 19 | Ground | Ground |
| 7 | Data 5 | Not connected | 20 | Ground | Ground |
| 8 | Data 6 | Not connected | 21 | Ground | Ground |
| 9 | Data 7 | Not connected | 22 | Ground | Ground |
| 10 | /ACK | Drive select | 23 | Ground | Ground |
| 11 | Busy | Motor on | 24 | Ground | Ground |
| 12 | Paper end | Write data | 25 | Ground | Ground |
| 13 | SLCT | Write enable | | | |

### Serial Port Connector (J6)


*Serial Port Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Data carrier detect | 6 | Data set ready |
| 2 | Receive data | 7 | Request to send |
| 3 | Transmit data | 8 | Clear to send |
| 4 | Data terminal ready | 9 | Ring indicator |
| 5 | Signal ground | | |

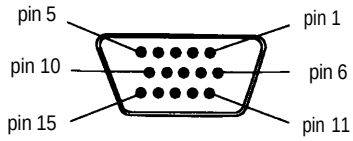
### Keyboard/Mouse Connector CJ1)




*Keyboard/Mouse Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Mouse data | 4 | +5 VCC |
| 2 | Keyboard data | 5 | Clock, mouse |
| 3 | Ground | 6 | Clock, keyboard |

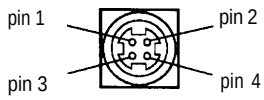
## VGA Port Connector (J11)




*VGA Port Connector Pin Assignments*

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | Red | 6 | Ground | 11 | MS0 |
| 2 | Green | 7 | Ground | 12 | MS1 |
| 3 | Blue | 8 | Ground | 13 | Horizontal sync |
| 4 | MS2 | 9 | Unused | 14 | Vertical sync |
| 5 | Ground | 10 | Ground | 15 | Unused |

## AC-DC Power Connector (JP1)




*AC-DC Power Connector Pin Assignments*

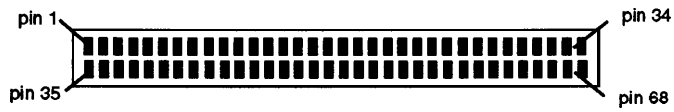
| Pin | Signal |
|---|---|
| 1 | Ground |
| 2 | +12 VDC (A/D) |
| 3 | +18 VDC (B+) |
| 4 | Thermostat (T) |
| Shielded | Frame ground |

## IDE Hard Disk Drive Connector (J8)


*IDE Hard Disk Drive Connector Pin Assignments*

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | /RESET | 17 | D0 | 33 | SA1 |
| 2 | Ground | 18 | D15 | 34 | Reserved |
| 3 | D7 | 19 | Ground | 35 | SA0 |
| 4 | D8 | 20 | Reserved | 36 | SA2 |
| 5 | D6 | 21 | Reserved | 37 | /CS0 |
| 6 | D9 | 22 | Ground | 38 | /CS1 |
| 7 | D5 | 23 | /IOW | 39 | HDDLED |
| 8 | D10 | 24 | Ground | 40, 43 | Ground |
| 9 | D4 | 25 | /IOR | 41, 42 | +5 V |
| 10 | D11 | 26 | Ground | 44 | +5 V |
| 11 | D3 | 27 | CHRDY | 45 | SA3 |
| 12 | D12 | 28 | Reserved | 46 | SA6 |
| 13 | D2 | 29 | Reserved | 47 | SA4 |
| 14 | D13 | 30 | Ground | 48 | SA7 |
| 15 | D1 | 31 | IRQ14 | 49 | SA5 |
| 16 | D14 | 32 | /IOCS16 | 50 | AEN |

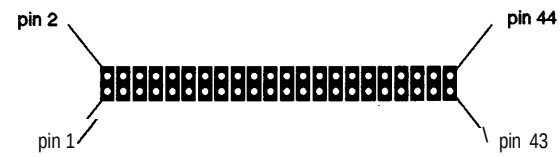
## PCMCIA Card Connector (J4)




*PCMCIA Card Connector Pin Assignments*

| Pin | Signal | Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|---|---|
| 1 | Ground | 18 | CVPP0 | 35 | Ground | 52 | CVPP0 |
| 2 | CDB3 | 19 | CA16 | 36 | CD1 | 53 | CA22 |
| 3 | CDB4 | 20 | CA15 | 37 | CDB11 | 54 | CA23 |
| 4 | CDB5 | 21 | CA12 | 38 | CDB12 | 55 | CA24 |
| 5 | CDB6 | 22 | CA7 | 39 | CDB13 | 56 | CA25 |
| 6 | CDB7 | 23 | CA6 | 40 | CDB14 | 57 | Unused |
| 7 | CE1 | 24 | CA5 | 41 | CDB15 | 58 | RESET |
| 8 | CA10 | 25 | CA4 | 42 | CE2 | 59 | WAIT |
| 9 | OE | 26 | CA3 | 43 | Unused | 60 | IPACK |
| 10 | CA11 | 27 | CA2 | 44 | IORD | 61 | REG1 |
| 11 | CA9 | 28 | CA1 | 45 | IOWR | 62 | BVD250 |
| 12 | CA8 | 29 | CA0 | 46 | CA17 | 63 | STCHG |
| 13 | CA13 | 30 | CDB0 | 47 | CA18 | 64 | CDB8 |
| 14 | CA14 | 31 | CDB1 | 48 | CA19 | 65 | CDB9 |
| 15 | WEPGM | 32 | CDB2 | 49 | CA20 | 66 | CDB10 |
| 16 | IREQ | 33 | IIS16 | 50 | CA21 | 67 | CD2 |
| 17 | CVCC0 | 34 | Ground | 51 | CVCC0 | 68 | Ground |

## Memory Module Connector (J5)




*Memory Module Connector Pin Assignments*

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | +5 VDC | 15 | RMA5 | 29 | CASH1- |
| 2 | MD0 | 16 | MD7 | 30 | MD14 |
| 3 | +5 VDC | 17 | RMA6 | 31 | CASL2- |
| 4 | MD1 | 18 | MD8 | 32 | MD15 |
| 5 | RMA0 | 19 | RMA7 | 33 | CASH2- |
| 6 | MD2 | 20 | MD9 | 34, 42, 44 | Ground |
| 7 | RMA1 | 21 | RMA8 | 35 | CASL3- |
| 8 | MD3 | 22 | MD10 | 36 | BRAS-1 |
| 9 | RMA2 | 23 | RMA9 | 37 | CASH3- |
| 10 | MD4 | 24 | MD11 | 38 | BRAS-2 |
| 11 | RMA3 | 25 | +5 VDC | 39 | BWE-1 |
| 12 | MD5 | 26 | MD12 | 40 | BRAS-3 |
| 13 | RMA4 | 27 | CASL1- | 41 | BWE-2 |
| 14 | MD6 | 28 | MD13 | 43 | BWE-3 |

## Internal Connector Pin Assignments

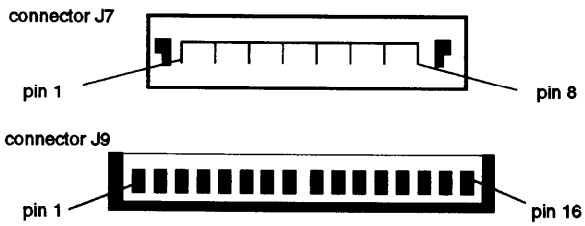
### Trackball Connector (J15)


This connector supports the built-in trackball pointing device.

*Trackball Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | +5V (Vcc) | 3 | SINB |
| 2 | /RTSB | 4 | Ground |

### Internal Keyboard Connectors (J7 and J9)




*Internal Keyboard Connector Pin Assignments*

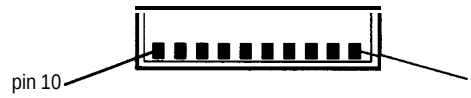
| J7 Pin | Signal | J9 Pin | Signal |
|---|---|---|---|
| 1 | IRQ1 | 2 | FUNC (Fn) |
| 2 | GA20 | 9 | SCRLOCK |
| 3 | KBRST | 12 | CAPSLOCK |
| 4 | Keyboard data line | 15 | NUMLOCK |
| 5 | +5 VDC system (+5VSYS) | 1,3-8,10 | Keyboard data lines |
| 6-8 | Keyboard data lines | 11,13,14,16 | Keyboard data lines |

### DC-DC Power Connector (J16)


*DC-DC Power Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Ground | 12 | Vcc (+5 VDC) |
| 2 | Ground | 13 | Vcc (+5 VDC) |
| 3 | Ground | 14 | Vcc (+5 VDC) |
| 4 | Ground | 15 | Vcc (+5 VDC) |
| 5 | EXTAC | 16 | +12 VDC |
| 6 | Ground | 17 | Vcc (+5 VDC) |
| 7 | BAT-LO1 | 18 | BAT-LO2 (CHARGE) |
| 8 | Vee (+24 VDC) | 19 | Vin (INV-PWR) |
| 9 | LCD ON | 20 | CONTR VR+ |
| 10 | Vee (+24 VDC) | 21 | Not connected |
| 11 | Vin (INV-PWR) | 22 | CONTR VR– |

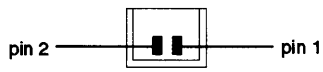
### LED Connector (J14)




*LED Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Ground | 6 | SR (PCMCIA) |
| 2 | HDDLED | 7 | /LOSPD |
| 3 | CAPSLOCK | 8 | BALED |
| 4 | NUMLOCK | 9 | /BUSYLED |
| 5 | SCRLOCK | 10 | +5V |

### Cover Closed Switch Connector (12)




*Cover Closed Switch Connector Pin Assignments*

| Pin | Signal |
|---|---|
| 1 | Ground |
| 2 | Sleep |

### LCD Panel Connector (J13)


*LCD Panel Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | P4 | 5 | P0 |
| 2 | P5 | 6 | P1 |
| 3 | P6 | 7 | P2 |
| 4 | P7 | 8 | P3 |

### LCD (CCFT) Inverter Connector (J12)


*LCD (CCFT) Inverter Connector Pin Assignments*

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | CONTROL | 7 | –24 VDC |
| 2 | Ground | 8 | CNRVR |
| 3 | LCD_LP | 9 | /CNRVR |
| 4 | +5 V | 10 | VIN |
| 5 | LCD_FP | 11 | BL_ON |
| 6 | LCD_SCP | 12 | Ground |

## DMA Assignments

| Level | Assigned Device |
|---|---|
| DMA0 | Available |
| DMA1 | Available |
| DMA2 | FDD controller (8-bit) |
| DMA3 | Available |
| DMA4 | Cascade for CTRL 1 |
| DMA5 | Available |
| DMA6 | Available |
| DMA7 | Available |

## Hardware Interrupts

| IRQ No. | Function |
|---|---|
| IRQ0 | System timer |
| IRQ1 | Keyboard |
| IRQ2 | cascade |
| IRQ3 | COM2 (trackball) |
| IRQ4 | COM1 |
| IRQ5 | Available |
| IRQ6 | FDD controller |
| IRQ7 | Parallel port LPT1 |
| IRQ8 | Clock/calendar |
| IRQ9 | VGA |
| IRQ10 | Available |
| IRQ11 | Available |
| IRQ12 | PS/2 compatible mouse |
| IRQ13 | Resewed for numeric coprocessor |
| IRQ14 | HDD controller |
| IRQ15 | Available |

## System I/O Address Map

| Hex Address | Assigned Device |
|---|---|
| 000-020 | DMA controller 1 |
| 020-040 | Interrupt controller |
| 040-060 | Timer/counter |
| 060-070 | Keyboard controller |
| 070-080 | Real-time clock NM1 (non-maskable interrupt mask) |
| 080-0A0 | DMA page register |
| 0A0-0C0 | Interrupt controller 2 |
| 0C0-0F0 | DMA controller 2 |
| 0F0-0F1 | Clear numeric coprocessor busy |
| 0F1-0F8 | Reset numeric coprocessor |
| 0F8 | Numeric coprocessor |
| 100-1F0 | Reserved |
| 1F0-200 | HDD controller |
| 200-208 | Reserved for game port |
| 208-278 | Reserved |
| 240-24F | PCMCIA controller |
| 27F-2F8 | Reserved |
| 2F8-2FF | Serial port 2 |
| 2FF-3B0 | Reserved |
| 3B0-3F0 | Video system |
| 3BC-3BE | Parallel port 1 (default) |
| 3F0-3F8 | FDD controller |
| 3F8-3FF | Serial port 1 (default) |

## Hard Disk Drive Types

| Type | Cylinders | Heads | Precomp | Landing Zone | Sectors (Sec) | Size* (In MB) | Drive Name/ Manufacturer |
|---|---|---|---|---|---|---|---|
| 1 | 988 | 10 | none | 0 | 17 | 82 | Toshiba MK1422FCV ** |
| 2 | 812 | 8 | 0 | 0 | 38 | 120 | Toshiba MK1522FCV ** |
| 48 | | | | | | | User-defined |
| 49 | | | | | | | User-defined |

* Actual size when formatted may be slightly different than the size listed on the drive label.

** Epson hard disk drive

## Programmable Timer/Counters

| Channel Number | Function |
|---|---|
| Channel 0 | Supports system timer |
| Channel 1 | Supports refresh cycles |
| Channel 2 | Supports audio speaker |

## Power-On Diagnostics and Boot Errors

The computer's ROM BIOS contains a series of diagnostic programs, called the Power-On Diagnostics (POD) or Power-On Self Test (POST). These programs check internal devices, such as ROM, RAM, the timer, the keyboard controller, and the hard disk drive, every time you turn on or reset the computer.

When the POD tests detect an error, the computer displays a message on the screen. (If the error occurs before the computer initializes the video display, the computer beeps.) If the error is serious, the computer cancels further checking and stops system initialization. The computer locks up, and if displayed, the error message remains on the screen.

The table below lists the error messages that may appear. The solutions provided must be followed in order. If more than one replacement module is specified, replace them in order, one at a time.

Power-on Diagnostics Error Messages

| Error No. | Message | Explanation |
|---|---|---|
| 1 | CMOS Battery Has Failed | Battery in DS 1287 or compatible RTC that supports CMOS is low. Replace DS 1287 or compatible RTC. |
| 2 | CMOS Checksum Error | Checksum of CMOS is incorrect. This can indicate that CMOS is corrupted; it may be caused by a weak battery. Check battery and replace DS 1287 or compatible RTC if necessary. |
| 3 | | Interrupt channel #2 failed POD routine. |
| 4 | | Battery in DS 1287 or compattible RTC that supports CMOS is low. Replace DS 1287 or compatible RTC. |

*Power-on Diagnostics Error Messages (continued)*

| Error No. | Message | Explanation |
|---|---|---|
| 5 | | Check sum value is generated and compared with CMOS values; if they differ, an error occurs. Run SETUP. |
| 7 | CMOS Display Type Mismatch | Video type stored in CMOS does not match type detected by BIOS. Run SETUP. |
| 10 | Keyboard Error or No Keyboatd Present | BIOS encountered timing problem with keyboard. Run SETUP and set Halt On option to No Error. Replace keyboard BIOS OTPROM. |
| 12 | Memory Size Mismatch | Run SETUP. Replace memory module, video controller (6410B),* keyboard interpreter (BTC 5001),* and/or main system board. |
| 13 | FDD Controller Failure<br><br>FDD Drive Error | BIOS unable to communicate with FDD controller. Check 6460. Run SETUP.<br>BIOS unable to communicate with FDD controller. Check cable connection. Run SETUP and set Parallel option to 1.44MB 3.5." |
| 14 | HDD Controller Failure<br><br>Unable to Initialize HDD Drive | BIOS unable to communicate with HDD. Run SETUP. Check connection on main system board. Replace hard disk drive, peripheral controller (6460),* and/or main system board.<br>Run SETUP. |
| 28 | Disk Boot Failure | BIOS reads diskette but cannot hoot system. Run SETUP. Replace boot diskette. |
| 29 | Memory Parity Error at | Parity error with DRAM on main system board. Displays hexadecimal address where error occurred. Run diagnostics program. Replace base memory DRAM (1 MB x 4 bit, 60/70ns)* and/or main system hoard. |
| 30 | Memory Verify Error at | Memory error with DRAM on main system board. Displays hexadecimal address where error occurred. Run diagnostics program. Replace memory module and/or main system hoard. |

- Requites main system board replacement for service centers not authorized to perform component level replacement.

## Error Beep Code

If the POD tests detect an error but cannot display an error message, the computer sounds the error beep code. An error beep code is a distinct pattern of beeps that identifies the error, such as one long beep and two short beeps. If there are no errors, the computer beeps once before it loads the operating system.

The table below describes the error beep code.

*Error Beep Code*

| No. of Beeps | Description |
|---|---|
| 1 long, 2 short | BIOS cannot initialize the video display; the computer is unable to display additional information. |

If you add the /A switch to the CARDTALK.SYS driver, the computer also beeps when a PCMCIA card is inserted. The table below lists the PCMCIA beep codes.

*PCMCIA Beep Codes*

| *No. of Beeps* | *Description* |
|---|---|
| *1 short* | The card is recognized. |
| 2 short | The card Is not recognized. LAN cards require drivers or enablers to be loaded; check the card documentation for more information. |
| 3 short | The card requires resources that are not available. |

## Installation/Support Tips

### SETUP

The SETUP program is stored in the 128KB ROM BIOS. To start the SETUP program, press the Delete key after the system boots. The table below describes some SETUP options.

*Selected SETUP Options*

| SETUP Option | Description |
|---|---|
| Power Management | Enables or disables a timeout period for the computer and/or hard disk drive to conserve battery power. |
| Parallel Port | Defines the parallel port as the external diskette drive port or the printer port. |
| Trackball | Enables or disables the built-in trackball; to use a mouse or other pointing device connected to the EXT KB or COM 1 port, disable the built-in trackball. |

### Special Key Combinations

The following function and control key combinations can be used in most DOS applications. However, some TSR programs and other utilities that replace the normal DOS keyboard interrupts may interfere with the operation of these key combinations.

special Key Combinations

| Key Combination | Function |
|---|---|
| Fn Delete | Enables Suspend mode; press any key to resume normal operation. |
| Fn F4 | Selects normal or reverse video. |
| Fn F5 | Displays the image on the LCD, an external monitor, or both. |
| Fn F6 | Turns the LCD backlight on or off. |
| Ctrl Alt - | Selects low speed mode (8 MHz). |
| Ctrl Alt + | Selects high speed mode (33 MHz). |

### PCMCIA Installation/Setup

See the PCREADME.TXT file on the ActionNote 4000 Reference disk for information.

## *Information Reference List*

### Engineering Change Notices

None.

### Technical Information Bulletins

None.

### Product Support Bulletins

None.

### *Related Documentation*

| | |
|---|---|
| **TM-AN4000** | Epson ActionNote 4000 Service Manual |
| PL-AN4000 | Epson ActionNote 4000 Parts Price List |
| SPKAN4000 | Epson ActionNote 4000 Self Paced Kit |
| 400221000 | Epson ActionNote (4000) User's Guide |
| 400223600 | Epson ActionNote (4000) Quick Reference |